The COVID-19 Pandemic's Effect on Minimally Invasive Surgery Training

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INTRODUCTION

The COVID-19 pandemic has had a dramatic impact on surgical education. One concern among the surgical community is if the virus can be transmitted to staff via aerosolized smoke used during minimally invasive surgery (MIS). As such, many have advocated for minimizing use of these techniques. Though this is a reasonable strategy in trying to minimize disease spread, it could negatively impact training for residents and fellows.

METHODS AND PROCEDURES

The electronic medical record at a single institution was queried for operations completed by the MIS/general surgery service during three time periods: the seven weeks during the pandemic in which elective surgery was suspended, the seven weeks that followed when elective surgery was resumed, and the corresponding seven weeks from the prior year. The number of operations, proportion of MIS operations, and complexity of MIS operations were compared.

RESULTS

The operative volume during suspension of elective surgery fell to 38 cases from 113 during the corresponding timeframe the prior year. After resumption of elective surgery, volume rebounded to 88 cases. During the suspension of elective surgery, 26 (68%) cases were completed minimally invasively. This compares to 79 (70%) and 65 (74%) before and after this time period, respectively (p=0.767). However, when bariatric cases were compared between groups, 0 were performed during suspension of elective surgery, which was significantly less than before (25, 32%, p=0.010) and after (26, 40%, p<0.001) that time. When percutaneous endoscopic gastrostomy (PEG) was examined, 10 (38%) were performed during suspension of elective surgery, whereas 13 (16%, p=0.031) and 4 (6%, p=0.001) were performed before and after this time, respectively.

	Pre-pandemic (n=79)	Suspension of Elective Surgery (n=26)	Resumption of Elective Surgery (n=65)	
Bariatrics	25 (32%)	0 (0%)	26 (40%)	**p<0.001**
PEG	13 (16%)	10 (38%)	4 (6%)	**p=0.002**
Laparoscopic Bowel Resection	26 (33%)	12 (46%)	23 (35%)	p=0.480
Laparoscopic Cholecystectomy	3 (4%)	1 (4%)	4 (6%)	p=0.785
Laparoscopic Hernia	7 (9%)	0 (0%)	4 (6%)	p=0.282
Diagnostic Laparoscopy	5 (6%)	3 (12%)	4 (6%)	p=0.629

CONCLUSIONS

Operative volume dropped greatly when the pandemic began, but the proportion of MIS operations remained unchanged. However, it appears the complexity of MIS cases diminished during this time. With a focus on discharging patients, PEGs were completed at a much higher rate, which helped to maintain an MIS presence. Unfortunately, more complex operations like gastric bypass were eliminated during that time negatively impacting resident and fellow learning. The pandemic, with anticipated additional waves, is not only reducing trainee operative volume, but also MIS complexity, which may leave many trainees ill-prepared for attending practice.

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